

NIKOLAUS GRIGORIEFF

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ACADEMIC EDUCATION

- 1985 - 1989 Technische Universität Berlin, Germany
Vordiplom in physics (first grade)
- 1989 - 1993 University of Bristol, UK
M.Sc. & Ph.D. in physics (semiconducting materials and devices, electron microscopy)

EXPERIENCE

- 1988 - 1989 Technische Universität Berlin, Germany
- Tutor with teaching responsibilities
 - Student representative on faculty board, joint responsibility for faculty policies and degree course design
- 1991 - 1993 University of Bristol, UK
- Demonstrator in undergraduate project laboratory, responsible for student supervision and grading
- 1993 - 1998 MRC Laboratory of Molecular Biology, Cambridge, UK
- Postdoctoral research assistant
 - Supervisor for research student, responsible for project design and supervision
- 1996 - 1998 Darwin College, Cambridge, UK
- Organizer of scientific seminars
- 1999 - 2013 Brandeis University, Waltham, MA
- Assistant Professor (1999), Associate Professor (2004), Full Professor (2006)

AWARDS, FELLOWSHIPS AND APPOINTMENTS

- 1988-90 Award from the Studienstiftung des Deutschen Volkes (national student award based on university nomination and interview)
- 1989 Award from DAAD (German Academic Exchange Service)
- 1990-93 Student grant from British Telecommunications plc.
- 1995-96 Research fellowship from Deutsche Forschungsgemeinschaft
- 1996-98 Research fellowship at Darwin College, Cambridge, England
- 2000-present Investigatorship, Howard Hughes Medical Institute
- 2004-05 Research fellowship from the Humboldt Foundation

RESEARCH ARTICLES

- Grigorieff, N., Cherns, D., Yates, M. J., Hockly, M., Perrin, S. D. & Aylett, M. R. (1993). Electron microscopy of ultra-thin buried layers in InP and InGaAs. *Phil. Mag.* **68**, 121-136.
- Grigorieff, N., Cherns, D., Preston, A. R. & Yates, M. J. (1995). Models for termination of crystal boundaries in the theory of transmission electron diffraction and comparison with experimental data. *Acta Cryst.* **A51**, 343-350.
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- Grigorieff, N. & Henderson, R. (1996). Comparison of calculated and observed dynamical diffraction from purple membrane: implications. *Ultramicroscopy* **65**, 101-107.
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- Lam, Y.-M., Grigorieff, N. & Goldbeck-Wood, G. (1999) Direct visualisation of micelles of pluronic block copolymers in aqueous solution by cryo-TEM. *Phys. Chem. Chem. Phys.* **1**, 3331-3334.
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- Mindell, J. A., Maduke, M., Miller, C. & Grigorieff, N. (2001). Projection structure of a ClC-type chloride channel at 6.5 Å resolution. *Nature* **409**, 219-223.
- Sokolova, O., Kolmakova-Partensky, L. & Grigorieff, N. (2001). Three-dimensional structure of a voltage-gated potassium channel at 2.5 nm resolution. *Structure* **9**, 215-220.
- Pirruccello, M.M., N. Grigorieff, and J.A. Mindell, (2002) Electron diffraction of a bacterial ClC-type chloride channel. *Novartis Found Symp.* **245**,193-203.
- McGovern, S. L., Caselli, E., Grigorieff, N. & Shoichet, B. K. (2002) A common mechanism underlying promiscuous inhibitors from virtual and high-throughput screening. *J. Med. Chem.* **45**, 1712-1722.

- Jurica, M. S., Licklider, L. J., Gygi, S. P., Grigorieff, N. & Moore, M. J. (2002) Purification and characterization of native spliceosomes suitable for three-dimensional structural studies. *RNA* **8**, 426-439.
- Mindell, J. A. & Grigorieff, N. (2003) Accurate determination of local defocus and specimen tilt in electron microscopy. *J. Struct. Biol.* **142**, 334-347.
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- Wolf, M., Eberhart, A., Glossmann, H., Striessnig, J. & Grigorieff, N. (2003) Visualization of the Domain Structure of an L-Type Ca²⁺ Channel Using Electron Cryo-Microscopy. *J. Mol. Biol.* **332**, 171-182.
- Sokolova, O., Accardi, A., Gutierrez, D., Lau, A., Rigney, M. & Grigorieff, N. (2003). Conformational changes in the C-terminus of *Shaker* K⁺ channel, bound to the rat Kvβ2-subunit. *PNAS* **100**, 12607-12612.
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- Kim, L. A., Furst, J., Gutierrez, D., Butler, M., Xu, S., Goldstein, S. A. N. & Grigorieff, N. (2004) Three-Dimensional Structure of Kv4.2-KChIP2 Channels by Electron Microscopy at 21 Å. *Neuron* **41**, 513-519.
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- Fotin, A., Kirchhausen, T., Grigorieff, N., Harrison, S. C., Walz, T. & Cheng, Y. (2006) Structure determination of clathrin coats to subnanometer resolution by single particle cryo-electron microscopy. *J. Struct. Biol.* **156**, 453-460.
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& Lawson, C. L. (2012) Outcome of the first electron microscopy validation task force meeting. *Structure* **20**, 205-214.

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Brilot, A. F., Chen J. Z., Cheng, A., Pan, J., Harrison, S. C., Potter, C. S., Carragher, B., Henderson, R., Grigorieff, N. (2012) Beam-induced motion of vitrified specimen on holey carbon film. *J. Struct. Biol.* **177**, 630-637.

Sindelar, C. V. & Grigorieff, N. (2012) Optimal noise reduction in 3D reconstructions of single particles using a volume-normalized filter. *J. Struct. Biol.* **180**, 26-38.

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Campbell, M. G., Cheng, A., Brilot, A. F., Moeller, A., Lyumkis, D., Veesler, D., Pan, J., Harrison, S. C., Potter, C. S., Carragher, B. & Grigorieff, N. (2012) Movies of ice-embedded particles enhance resolution in electron cryo-microscopy. *Structure*, **20**, 1823-1828.

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Brilot, A. F., Korostelev, A. A., Ermolenko, D. N. & Grigorieff N. (2013) Structure of the ribosome with elongation factor G trapped in the pre-translocation state. *PNAS* **110**, 20994-20999.

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Rohou, A. & Grigorieff, N. (2014) FREALIX: model-based refinement of helical filament structures from electron micrographs. *J. Struct. Biol.* **186**, 234-244.

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- Loveland, A. B., Bah, E., Madireddy, R., Zhang, Y., Brilot, A. F., Grigorieff, N. & Korostelev, A. A. (2016) Ribosome•RelA structures reveal the mechanism of stringent response activation. *eLife*, **5**, e17029.
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Demo, G., Rasouly, A., Vasilyev, N., Svetlov, V., Loveland, A. B., Diaz-Avalos, R., Grigorieff, N., Nudler, E. & Korostelev, A. A. (2017) Structure of RNA polymerase bound to ribosomal 30S subunit. *eLife*, **6**, e28560.

REVIEWS

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OTHER GRIGORIEFF-LAB RESEARCH PUBLICATIONS

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